4: Grajdanzev--44 S-4 (no date) 1942 Formosans
116, 161, 433, 464, 471

"Two thousand yen per ko (2.4 acres) is an apalling [sic] price where the daily wages of a worker are about one yen per day, and it prevents the landless from having a chance to become owners of land. However, the phrase 'population pressure' is not used here in the Malthusian sense. The question is not one of food--the island produces twice as much as the islanders consume--but of employment. Openings in industry are few; independent industrial enterprise is almost impossible because a plant worth a few hundred or thousand yen cannot compete with a modern factory. The only occupation left is that of the farmer--a customary occupation for the majority of the islanders. The rise in land values is a symptom of the growing difficulty of finding employment, and not of a growing scarcity of food."

4:Grajdanzev--45 S-4 (no date) 1942 Formosans
116, 312, 471, 655, 177.31 Japan
636.31

"In any case the success in irrigation should be recognized as conspicuous, and it is not less striking that it was achieved with the relatively modest investment of about fifty million yen by the state since 1908. But the state has gradually withdrawn from the field, leaving irrigation works to private enterprise and to special irrigation associations. In 1937 the irrigated area was divided among three groups as follows: 140,500 ko were irrigated from the public canals, 132,000 ko from canals belonging to private persons, 259,000 ko from those of irrigation associations. The last are under the influence of landowners and of the owners of enterprises processing agricultural products."

4:Grajdanzev--61 S-4 (no date) 1942 Formosans
116, 249, 423, 471, 177.47 Japan
636.47

"The old type of sugar cooperatives dominating the industry before 1895 disappeared with the advent of capitalistic forms of enterprise in Taiwan. Production of sugar is now carried on in modern mills which are the property of the Japanese sugar companies possessing tremendous amounts of capital (several hundred million yen). Step by step these companies acquired a huge area of cultivated land——from [illegible]3.2 thousand ko in 1925 this area increased to 93.2 thousand ko in 1935. The latter figure amounts to more than ten per cent of the cultivated area of the island, but in the regions where sugar cane is cultivated the companies own more than twenty per cent of the area under cultivation (1).

1. Actually their influence is greater than these figures suggest because they rent about 20,000 ko of land.

However, it would be a mistake to think that this huge area is used by the manufacturers for sugar cane plantations. They plant only about 18,000 to 25,000 thousand ko with cane, while all other sugar cane is bought by them from the small farmers, i.e. about three-quarters of the total sugar cane production is supplied by 127,000 to 130,000 farmers, each planting on the average only half a ko."

4:Grajdanzev--62-63 S-4 (no date) 1942 Formosans
116, 241, 312, 471, 177.24 Japan
636.24

"By putting irrigation works at the service of the farmers (at a price) the government, the local bodies, and the companies [63] impose a condition that a certain part of the newly-irrigated area should be devoted to sugar cane. This stipulation may be to the advantage of the farmer or to his disadvantage, but it is clear that he is not free to decide."

4:Grajdanzev--66-67 S-4 (no date) 1942 Formosans
116, 245, 255, 464, 471, 177.24 Japan
636.24

"Pineapples were cultivated in Taiwan before the occupation of the island by the Japanese, but only after the introduction of canning did the industry begin to expand rapidly. The fruit is raised on the hill slopes and thus does not compete with [67] cereals or sugar cane. The authorities estimate that more than 20,000 ko can be used for pineapple plantations, but the area under cultivation is now only 9,000 ko. Data on production are given below.

Pineapple Production in Taiwan

	1921	1935	1936	1937	1938
Area under pineapples (1,000 ko)	1.3	7.0	8.0	8.9	9.9
Crop (1,000,000 kin)	8.9	87.1	110.2	107.8	116.0
Value (1,000 yen)	367	2,626	3,129	3,115	...
Value of exports of (¥1,000) canned pineapples	865	7,306	5,857	7,600	10,620*

* Exports of canned and fresh pineapples.

Sources: Nogyo Nenkan; for 1938, Taiwan Jijo.

Production, chiefly of the plantation type using hired labor, is chiefly in Japanese hands."

4: Grajdanzev--68 [2] S-4 (no date) 1942 Formosans
116, 241, 471, 656, 177.65 Japan
636.65

"These examples--the cotton plan and horse-breeding plan--are extremely significant. The government officials work out plans which can hardly be called realistic and yet the successes of agriculture in Taiwan are very frequently ascribed to the government's efforts and plans."

4:Grajdanzev--85 S-4 (no date) 1942 Formosans
116, 221, 226, 433, 471, 177.22 Japan
636.22

"Fishing, which did not demand an elaborate equipment, was an important auxiliary occupation for the Chinese farmers, especially in slack seasons. The sea around Taiwan is rich in fish and the Chinese are expert fishermen. It is natural, then, that fishing has become an important element in the economy of the coastal farmers. But at the time of their conquest of Taiwan the Japanese were not interested in the fisheries because at that time the seas around Japan proper and near Kamchatka had not been sufficiently utilized. Petty regulations, the taxing of fishermen, and other measures brought a decline in this ancient Chinese occupation and only recently, when the Japanese felt a need for more fisheries, and when their huge corporations with their mechanized equipment turned to the South, did the government become interested in fishing. The results were the same as in all other spheres of the economic life of Taiwan: Japanese fishing grew at the expense of Chinese."

4:Grajdanzev--86 S-4 (no date) 1942 Formosans
116, 226, 228, 471

"Gross Value of Fisheries' Products
(1,000 yen)

	1919	1923	1928	1931	1934	1936	1937	1938
Value of catch	5,058	9,031	12,670	8,483	11,453	14,934	14,513	15,671
Value of manufactured products	1,424	3,304	2,706	1,525	2,291	2,500	2,324	2,359
Value of products of fish ponds	2,422	1,944	3,402	3,047	2,890	4,207	4,545	5,525
Total	8,904	14,279	18,778	13,055	16,634	21,641	21,382	23,555"

4:Grajdanzev--86 [21 S-4 (no date) 1942 Formosans
116, 228, 471, 473, 563

"As to the other fishing enterprises, their relative strength may be presented in the following manner:

Fishing Enterprises in Taiwan

	Number of firms	Nominal capital (1,000 yen)	Paid-up capital (1,000 yen)	Average paid-up capital per company (1,000 yen)
Japanese corporations with offices in Japan	2	101,500	65,500	32,750
Japanese corporations with offices in Taiwan	28	5,972	3,044	109
Other firms (mostly Chinese)	21	429	399	19

In this field the Chinese can hardly compete with the Japanese because of their lack of capital (1).

1. It is interesting to note that, according to the last census, out of 82,338 Chinese fishermen 16,382 were employers, while among 5,045 Japanese only 101 were employers. Evidently, the Chinese 'employer' had one to three workers, while the Japanese employer was a person or firm of considerable means."

4:Grajdanzev--94-96 S-4 (no date) 1942 Formosans-1-3
116, 454, 471, 472, 473

"Finally, we may compare these industries from the point of view of the amount of capital invested in them: (1) [95]

1. Only paid-up capital is included because data for the reserves of smaller corporations could not be found.

Capital Invested in Taiwan's Industry in 1937
(million yen)

	Corporations	Limited partnership	Unlimited partnership	Total
Textile industry	2.7	0.1	0.1	2.9
Machine	3.9	0.9	0.1	4.9
Ceramics	3.3	0.2	0.1	3.6
Chemical	9.6	0.3	0.2	10.1
Lumber	1.5	1.1	0.1	2.7
Food	113.1	4.6	0.4	118.1
Printing	0.5	0.1	...	0.6
Gas and Electricity	47.0	...	...	47.0
Others	1.0	0.3	0.3	1.6
Total	182.6	7.6	1.3	191.5*

Footnote on next page.

* The official estimate of the total capital of industry on Dec. 31, 1937, was ¥258.5 million but it is not clear whether this figure includes nominal capital or only paid-up capital and, whether it includes other investments, government enterprises etc.

Source: Taiwan Jijo, 1939.

Again the food industry is in first place. Actually its position is much more important because it has accumulated considerable reserves. Next in importance is gas and electricity because here investments play a greater part than the number of men occupied while ceramics and printing are poor in capital. It may be of interest to compare the average investment per enterprise for the same year:

Paid -Up Capital per Business Unit
(1,000 yen)

	Corporations	Limited partnership	Unlimited partnership	Average (weighted)
Textile	671	60	120	477
Machine	353	38	45	123
Ceramics	276	21	33	155
Chemical	387	37	115	289
Lumber	163	93	23	106
Food	1,509	78	44	832

Paid-Up Capital per Business Unit Cont.
(1,000 yen)

	Corporations	Limited partnership	Unlimited partnership	Average (weighted)
Printing	101	12	...	41
Gas and electricity	7,836	10	...	6,718
Others	76	13	68	38
All industry	1,127	51	54	578

[96] We see from this table that in Taiwan there are very large enterprises in the electric power, food, and textile industries, where capital per enterprise is relatively large, while enterprises in the printing, machine, lumber, ceramics and 'other' industries are very small in size. It should be pointed out that individual enterprises are not included here, (2) but both their capital and the value of their products are insignificant

2. The number of individual enterprises in 1934 were reported as follows: 62 in textiles, 91 in metals, 173 in machinery, 588 in ceramics, 428 in chemicals, 3,960 in foods, 256 in lumber, 126 in printing and 381 in others, a total of 6,065, almost all of them Chinese (Takahashi, op. cit., p. 438).

in comparison with those of the companies."

It is also interesting to compare the size of the companies in Taiwan as regards capital with those in Japan proper and in Korea.

Industrial Companies, their Total and Average Capital in the Japanese Empire, December 31, 1937.

	Companies, number	Total paid-up capital and investments (million yen)	Capital per enterprise (1,000 yen)	Capital per capita of population (yen)
Japan proper	30,518	9,396.9	308	132
Korea	981	246.2	251	11
Taiwan	335	191.5	572	34
Kwantung	358	96.9	271	81
Karafuto	88	33.6	382	103

Source: Dainippon teikoku tokei nenkan, 1939.

It is clear that Taiwan and Korea are poorly supplied with capital per capita of population, but there is an important difference between them: the average capital per company in Taiwan is higher than in any other part of the Japanese Empire, including Japan proper. These are averages and include small as well as large companies, but behind them one may see the silhouettes of big corporations dominating the economic life of Taiwan,

corporations which have few equals even in industrially developed Japan (1).

1. By size of total paid-up capital the corporations and partnerships in industry in Taiwan were distributed as follows: [97]

Size		Number of companies	per cent of total	Total paid-up capital (1,000 yen)	per cent of total
Less than	¥10,000	50	14.9	253	0.1
¥ 10,000-	49,000	111	33.1	1,922	1.0
¥ 50,000-	99,000	34	10.2	1,276	0.7
¥ 100,000-	199,000	48	14.3	3,020	1.6
¥ 200,000-	499,000	40	11.9	4,878	2.5
¥ 500,000-	999,000	20	6.0	4,694	2.5
¥1,000,000-	4,999,000	25	7.5	24,077	12.6
¥ 5,000,000-	9,999,000	2	0.6	5,700	3.0
Over	¥ 10,000,000	5	1.5	145,316	76.0
Total		335	100.0	191.1	100.0

Thus, 32 companies—9.6 per cent of the total number—had 91.6 per cent of the total capital of companies."

4:Grajdanzev--110-111 S-4 (no date) 1942 Formosans-1-3
116, 463, 471, 563, 655, 177.47 Japan
636.47

"Our analysis of industry and mining must not be limited to a survey of present conditions and the plans of the government, etc. Properly speaking it should only begin here. The population of Taiwan is about five per cent Japanese and about ninety-five per cent Chinese and aborigines. In order to evaluate the place of these two groups in industry and mining we should know wage levels and working conditions as well as the all-important question of who are the entrepreneurs and who the wage earners. Unfortunately, some of these questions cannot be answered because of the absence of information.

The latest available report concerning the nationality of capital in Taiwan's companies refers to the years 1929.

Distribution of Corporate Capital in Taiwan by Nationality in 1929
(1,000 yen)

	Japanese	Chinese	Other*	Total
Agriculture	4,434	4,962	4	9,399
Industry	180,497	16,786	1,658	198,941
Commerce	23,128	28,082	2,033	53,242
Communications	3,186	2,571	25	5,781
Fisheries	2,258	1,190	20	3,467

Distribution of Corporate Capital in Taiwan by Nationality in 1929 [Cont.]
(1,000 yen)

	Japanese	Chinese	Other*	Total
Mining	12,243	3,441	1,422	17,107
Total	225,745	57,033	5,161	287,939

* Chiefly Chinese from the mainland, citizens of the Chinese Republic.

The share of the Japanese was therefore 90.7 per cent in industry and 71.6 per cent in mining, while the corresponding shares for the Chinese were 8.5 per cent and 20.1 per cent. It is true that these figures do not include individual enterprises, which are chiefly Chinese, but it is quite evident that their inclusion would not greatly change the picture because the average capital of such enterprises is very small. On the other [111] hand this table does not include government enterprises which should be considered for all practical purposes as Japanese enterprises (the managerial staff is Japanese and the profits may be transferred to Japan at any time), and the capital of these government enterprises is huge. As is seen from the table, the capital of all corporations was about ¥288 million in 1929, yet in the same year the capital of the state railways alone was ¥122 million. Beside railways the government has many enterprises of all kinds. Since 1929 the situation has further changed to the disadvantage of the Chinese group for in the

last few years, as was shown above, huge new companies have been established and the capital of old ones increased. The new companies are Japanese. In 1929, for example, the capital of the Japanese companies occupied in the fisheries was ¥2,258,000; in 1939 two Japanese companies with headquarters in Japan proper, whose capital is ¥65,500,000 were operating in Taiwan. Of course, only a part of this capital is sunk in their Taiwan enterprises, but it is clear that the situation in 1939, in this as well as in many other respects, is less favorable to the Chinese than it was ten years before.

The same thing has occurred in mining, where the total capital is now ¥46.6 million, instead of ¥17.1 million as in 1929. The increase is due to the activities of the Japanese Koyo Kogyo, Taiwan Kogyo, and Keelung Tanko corporations."

4:Grajdanzev--111-112 S-4 (no date) 1942 Formosans
116, 463, 471, 563, 477

"A similar expansion [similar to that in mining--analyst] has taken place in industry, where all large new enterprises are owned by Japanese who make up only five per cent of the population, but now own at least ninety-five per cent of the capital in Taiwan's industry and more than ninety per cent of the capital in mining. But if one takes into consideration the fact that the Japanese enterprises are modern, while those of the Chinese are small and have more primitive equipment, (1) it becomes clear that the share

1. Compare the data on sugar mills given above.

of the Japanese enterprises in production is even greater than comparison of the respective holdings would indicate. Furthermore, the shares of corporations in Taiwan are not subject to free purchase and sale. These are monopolistic [112] organizations, and shares in them are not offered on the open market but are held by the big corporations of Japan."

4:Grajdanzev--112 S-4 (no date) 1942 Formosans -1-2
116, 171, 471, 563, 477, 655, 177.47 Japan
636.47

"It may be of some interest to compare the share of native corporations in the total corporate capital of Taiwan with their share in Korea, for which the most recent data is available:-

Percentage Share of the Native Corporations in the Total Capital of Corporations

	Taiwan, 1929 Per cent	Korea 1938 Per cent
Agriculture	52.8	20.7
Industry	8.5	6.6
Commerce	52.7	19.1
Communications	44.5	7.5
Fisheries	34.3	6.3
Mining	20.1	6.8
Total	19.8	11.3

Source for Korea: Kokusei gurafu, April 1940.

It is evident from this table that in Korea the occupation of commanding positions by Japanese capital had proceeded much further by 1938 than it had in Taiwan by 1929. Native capital was strongest in Taiwan in 1929 in agriculture, commerce, communications and fisheries and it is interesting to note that Korean capital was most strongly placed

just in these branches in 1920. This is not a coincidence. The squeezing out of the native capital usually begins in industry and mining (2) and reaches commerce and agriculture

2. Actually it began with communications. The railroads in both colonies are in Japanese hands, but since they belong chiefly to the government they are not included in the above figures.

only at a later stage. In Korea native capital is now only eleven per cent of total corporate capital. and there is no reason to expect that the proportion is higher in Taiwan.

The answer to the first question as to the nationality of capital in industry and mining in Taiwan is thus quite clear—from ninety to ninety-five per cent of this capital belongs to the Japanese."

4:Grajdanzev--112-113 S-4 (no date) 1942 Formosans
116, 171, 563, 471

"According to Takahashi, (1) industry in Taiwan [113] is chiefly in Japanese hands because

1. Op. cit, p. 434 et seq.

(1) the Japanese are able to organize modern enterprises; (2) the Chinese are chiefly concentrated in domestic industry; (3) the national characteristics of the Chinese are such that they are unable to organize corporations; (4) any accumulations of capital which they may have are small because they came to the island recently and their chief occupation is agriculture; (5) they cannot compete in the Japanese market with the Japanese because they do not know the market; (6) in those cases where they do organize a corporation their aim is to get profits quickly, and this brings ruin to the corporation. This is a familiar argument in colonial countries. We make only a few comments below.

It is argued that the Chinese do not have the accumulation of capital necessary for modern industry, that they came to Taiwan recently (!) and that their chief occupation is agriculture. But in 1900-05, when the Japanese began to build up the industrial enterprises of Taiwan, the chief occupation of the Japanese in Japan was also agriculture. It would be a mistake to suppose that they exported a huge amount of capital to Taiwan. This question will be touched upon in the chapter on the external trade of Taiwan, where we shall show that the capital of corporations in Taiwan was 'created' chiefly in Taiwan itself."

4:Grajdanzev--113 S-4 (no date) 1942 Formosans
116, 463, 471, 563, 177.47 Japan
636.47

"Our first question is now answered: the Chinese as a group receive very little from Taiwan's industry and mining in the form of interest on capital or entrepreneurs' profits. Any advantages which they may derive from these industries arise then chiefly from their position as workers. Let us see now what they receive in this capacity. In 1936, out of 81,589 workers occupied in industrial enterprises with five or more workers or having a prime-mover, 76,251 (93.5 per cent) were Chinese—almost the same percentage as in the population of Taiwan. The remaining 6.5 per cent were chiefly Japanese."

4:Grajdanzev--154 S-4 (no date) 1942 Formosans
116, 127, 471, 661

"We have now come to a point where some estimate may be made of what the Japanese are getting from Taiwan (1). It is important to emphasize that all that follows is based,

1. Such questions as how many among the Japanese receive benefits from Taiwan and whether these benefits are distributed equally among recipients, do not concern us here.

with few exceptions, not on more or less exact official figures, but only on estimates. All those who have worked on colonial problems know how difficult it is to get certain data. This does not mean, however, that we should give up the idea of forming an opinion concerning, for example, colonial profits, for many facts are available which help us to make estimates. These are not therefore based on intuitive guesses, but are all founded on certain facts supplied by official and unofficial Japanese statistics."

45:Stanford U. S-4, 5 1956 AD1 Formosa
~~AD1~~ AD1

A ECONOMIC DEVELOPMENT UNDER THE JAPANESE

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Japan's exploitation of Formosa falls into two periods: (1) from 1895 to 1936; (2) from 1936 to 1945. During the first period, Formosa's economy was geared to the demands of the Japanese homeland. The island was developed to export sugar, rice, salt, and other primary products in exchange for Japanese manufactured goods and fertilizers. Japan took between 90-95 per cent of the exports and supplied 85-90 per cent of the island's imports.[43] To facilitate transportation, a network of excellent railroads and highways was constructed, and the harbors, especially those at Keelung and Kaohsiung, were modernized. Industries were owned and operated either by the government or by large Japanese corporations, with very little participation by the local people. Chinese workers were paid wages 50 per cent lower than those paid Japanese workers on a similar job.[44]

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43. Taiwan, A geographical Appreciation, compiled by the Dept. of Mining and Technical Survey, the Canadian Government, Ottawa, 1952, p. 15.

44. Grajdanzev, op. cit., p. 116.

565 time of inheritance, so the contrast between the rich and the poor was not striking. In effect, except for the political and ethnic class lines between the ruling Japanese and the ruled Formosans, social stratification was not clearly marked during the Japanese rule.

After the restoration of Formosa to China in 1945, political and ethnic class lines disappeared with the abolition of the colonial system. With the implementation of the Land-to-the-Tiller policy, inequality in land proprietorship was greatly reduced. When the China Mainland was lost to the Communists in 1949, tycoons transferred their capital to other parts of the world, so that there are no extremely wealthy people in Formosa. New industrial development after the restoration may cause economic differentiation in the future, but for the time being, social stratification is not a serious problem in Formosa. This is the general outline. Some specific topics will be considered on the following section.

2. Primary and Secondary Ownership of Land

• 471 425 Until the early years of the Manchu rule the land in the southern part of the island was agriculturally exploited under the protection of the government. When people began to farm the northern and middle part of the island,

•471 they had to rely on themselves. Usually rich
425 and influential people received land grants from the government. Then they hired farmers, supplied them with capital, and organized self-protection forces against bandit and aborigine raids. In return, the owner received rent from the cultivators. Legally he was the proprietor and landlord. When a cultivator was assigned a large patch of land, he could rent some parts of it out to other cultivators, and thus in a sense he also became a landlord. In this case there were two proprietors for the same patch of land. This is the origin of primary and secondary ownership of land in Formosa. The original proprietor held the first title, the second proprietor held the second title to the land. The cultivator paid rent to the second proprietor, and the second proprietor paid rent to the first proprietor. The first proprietor, as the nominal owner of the land, paid the land tax to the government. Sometimes with the connivance of officials, an influential man could get the first title to certain land without any investment and collect the rent.

423 This complicated system of land ownership resembled somewhat the Oberhoheit and Unterhoheit of medieval Germany, and the landlords' control of the self-protection forces tended toward a kind of feudal system. Moreover, this system made the transfer of

Stanford U. S-4, S 1956 AD1 Formosa Atl.

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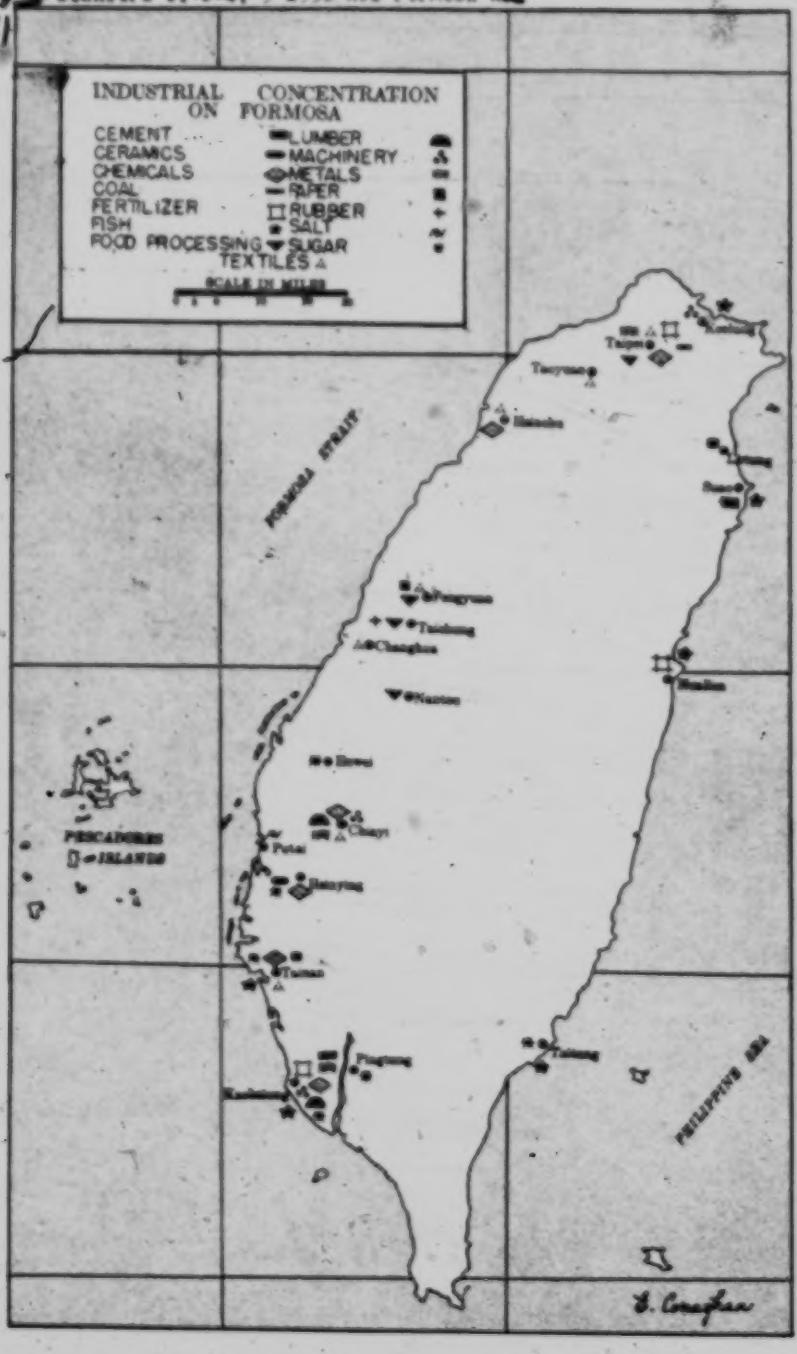

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177 were rapidly worn out. After 1943, Allied
178 aerial attacks dealt them a further crippling blow.

At the time of Japan's surrender it was found that thirty-four of the forty-two sugar mills in Formosa had been reduced to ruins by American bombing. The oil refinery at Kaohsiung suffered 800 bomb hits. The generating capacity of the Western Power System at Sun-Moon Lake was reduced from 308,000 kilowatts to 32,000 kilowatts. The mills of the Taiwan Pulp and Paper Corporation were damaged -- 50 per ent of the buildings and 30 per cent of the machinery -- by Allied aerial bombings.[5]

•471 On August 14, 1945, Japan surrendered to the Allies, and Formosa was restored to China. The Chinese government took over all the industrial enterprises previously owned by Japanese nationals. Some of these, including printing houses, match and food

5. Industrial Enterprises of National Resources Commission in Taiwan -- General Information, National Resources Commission, Taipei, 1951.

471 factories, and some sixty coal mines, were sold to private owners. The rest were grouped under the management of eighteen public corporations, operated either by the National Government or by the Provincial Government, or by the two jointly.[6]

Industries that were operated by the National Government were:

(1) Chinese Petroleum Corporation
(2) Taiwan Aluminum Works
(3) Taiwan Gold and Copper Mining Administration
(4) Chinese Salt Corporation
(5) Hsinchu Coal Mining Administration
(6) Taiwan Steel Works

The industries operated jointly by the National and Provincial governments were:

(7) Taiwan Power Company
(8) Taiwan Sugar Company
(9) Taiwan Fertilizer Company
(10) Taiwan Cement Company

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6. Han, Lih-wu, Taiwan Today, Taipei, Hwa Kuo Publishing Co., revised edition, 1952, pp. 106-07.

•471

(11) Taiwan Pulp and Paper Corporation
(12) Taiwan Shipbuilding Company
(13) Taiwan Machinery Manufacturing Corporation
(14) Taiwan Alkali Company

Those operated by the Provincial Government were:

(15) Taiwan Industry and Mining Corporation
(16) Taiwan Camphor Bureau
(17) Taiwan Tobacco and Wine Monopoly
(18) Taiwan Agricultural and Forestry Development Corporation

These public trusts replaced the government monopolies and the government-backed corporations under Japanese control. The preponderance of public enterprise on Formosa often amazed visitors, but the economic structure was dictated by circumstance rather than by choice. The editor of Industry of Free China[7] gave the following explanation for the existence of the huge government corporations:

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7. Industry of Free China, a monthly published by the Industrial Development Commission, ESB, Vol. I, No. 4, Taipei, April, 1954.

•471 1. During the Japanese occupation, all modern industries on Formosa were owned by the Japanese, and, as enemy property, they passed under the control of the Chinese government.

2. Many public enterprises on the Mainland were evacuated to Formosa with the withdrawal of the Nationalist Government to the island.

3. Allied bombings had caused the widespread destruction of industrial plants. Extensive repairs were necessary. Only the government with immense resources was able to undertake such extensive rehabilitation.

4. Formosans had been given only secondary positions in industries by the Japanese. They had neither the experience required to manage large-scale enterprises nor the capital needed to finance operation.

178 With the economic and technical assistance provided by the United States, systematic repairing and reconstruction of the damaged industries in Formosa were carried out by the concerted efforts of the Nationalist Government. By 1950 most of the plants have been put back into production. Since 1950 the industrial advance has been

45:Stanford U, S-4, 5 1956 AD1 Formosa
AD1

Table 3. Number of Registered Factories in Formosa*

Industry	1950			1953		
	Public	Private	Total	Public	Private	Total
Food	88	3,971	4,059	79	5,405	5,484
Textiles	8	200	208	17	1,228	1,245
Chemicals	38	552	590	41	1,031	1,072
Ceramics	25	712	737	24	1,224	1,248
Metals	8	188	196	10	184	194
Machinery	21	707	728	28	1,026	1,054
Lumber	18	492	510	23	552	575
Printing	3	184	187	4	215	219
Electricity & Gas	34	-	34	34	2	36
Others	2	223	225	4	1,308	1,312
Total	245	7,229	7,474	264	12,175	12,439

* Provincial Department of Reconstruction.

[433] timber, and is also rich in oil and a favorable climate.
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2. It has abundant power and good means of communication.

3. A great deal of dismantled equipment has been imported from the Mainland.

4. As a result of the massexodus from the Mainland, Formosa has many trained personnel

5. Labor supply with experience of mechanical operations is plentiful.

472 It should be noted, however, that 90 per
● 471 cent of the private factories are of very small size, operated by a single owner. More than half have less than 5 hired workers, one-sixth from 6 to 10, and a fifth from 11 to 30 workers. Ninety-five per cent have capital of less than NT $50,000 (US $3,000). Twenty-six per cent depend entirely on manual labor, 67 per cent use a motor under 15 horsepower, and only 7 per cent use motors of 15 horsepower or more.[10] On the other hand, the government

10. Arthur F. Raper and others, Urban and Industrial Taiwan, Crowded and Resourceful, published by FOA/MSM to China and National Taiwan University, Taipei, 1954, pp. 122-23.

472 factories, though much fewer in number
471 (2.1% of the total), are far larger than the private enterprises. The contrast in size of government-owned and private factories is indicated by the value of their products, as shown in the table below.

45:Stanford U, S-4, 5 1956 AD1 Formosa
AD1

Table 4. Approximate Percentage Distribution of Value of Major Industrial Products from Government and from Private Factories, Enterprises, and Mines on Formosa, 1953*

Type of Production	Government Enterprises	Private Enterprises	Total Value of Industrial Production
Percentage distribution of value of all industrial production	65%	35%	100%
Sugar and by-products	98	2	18
Transportation	86	14	13
Textiles	37	63	10
Mining	15	85	7
Alcoholic beverages and tobacco	100	-	6
Metal Products	16	84	6
Edible oil	3	97	6
Timber	52	48	6
Petroleum products	100	-	5

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(continued)			
Rubber goods	6	94	4
Electric power	100	-	4
Fertilizer	100	-	4
Machinery	24	76	3
Cement	100	-	2
Paper	61	39	2
Chemicals	82	18	1
Canned pineapples	62	38	1
Salt production	100	-	#
All others	53	47	2

* Raper and others, ibid., p. 118.
\# Less than 1 per cent.

471 Despite the fact that private enterprises surpass in number public enterprises in the ratio of 48:1, two-thirds of the total industrial output of Formosa are controlled by the government. The dominant position of government enterprises has elicited much criticism. Private industries are in no position to compete with the government corporations, especially when the latter are accorded many special privileges, such as liberal bank credit, special rates of foreign exchange, and raw material at low cost. Besides, possessing monopolistic power, bureaucracy overtakes public enterprises. Nepotism is rampant. It is found that "in many government-owned enterprises there is an excess of management and worker personnel."[11] K. Y. Yin, former Minister of Economic Affairs, expressed the view that industries can attain a higher level of efficiency only when operated by private individuals with profit incentives.[12] Early in 1953 the Chinese government in connection with the Land Reform program decided to offer four public enterprises for sale. On November 12, 1953, Premier Chen Cheng in his administrative report to the Third Plenary Session of

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11. Raper and others, ibid., p. 4.

12. K. Y. Yin (former Minister of Economic Affairs) My Views on Taiwan's Economy, Taipei, China Culture Publishing Foundation, 1953, p. 9.

● 47 the Kuomintang's Seventh Central Committee, said: "We are of the opinion that whatever enterprises are capable of being run by the people should be finally transferred to private ownership. This is not only a basic principle in the development of national economy but also one of the best means to uproot bureaucratic capital."[13] In pursuance of this policy, the Taiwan Pulp and Paper Corporation and the Taiwan Cement Corporation have been transferred to private ownership. The other public properties under consideration for sale are 15 brick-kiln yards, 12 coal mines, 11 ice storage plants, 4 metal factories, 4 jute-washing factories, 2 tanneries, and about 30 miscellaneous plants.[14] Even when

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13. Quoted in Industry of Free China, April 1954, p. 1.

14. The Taiwan Pulp and Paper Corporation and the Taiwan Cement Corporation were transferred to landowners whose land had been purchased by the government for redistribution. The other public properties belong to the Agricultural and Forestry Development Corporation and the Industrial and Mining Corp. It is provided in the Rules Governing the Transfer of Public Enterprises to Private Ownership under the Land-to-the-Tiller Act that any government stocks that should still remain after allocation in payments to landlords will be sold by tenders until such stocks are sold.

471 the transfer transactions are completed, the government will still control 60 per cent of the total value of industrial output.

656 Another adverse factor affecting the development of private enterprise is the multiplicity of government controls. The prices of coal, cement, fertilizer, and many other goods are regulated by the government. "The government also operates a supply bureau, through which small private manufacturers secure much of their imported raw materials. Banks, foreign exchange, and import and export licenses are controlled by the government; the sale of exports is permitted by the government only at prices above fixed floor prices."[15] In the field of taxation, inequities are widely reported. The discrimination in favor of public enterprises and the vexatious government controls seriously hamper the 178 growth of private industry. Formosa is 472 emerging from a colonial economy into a self-sufficient economic unit. The need for the production of goods and services is tremendous. The creation of new employment opportunities is also imperative on account of the enormous increase in population in recent years. In future industrial expansion, private enterprise

15. Raper, op. cit., p. 10.

249 defeated the Dutch, annual production rose to
433 18,000 metric tons, a large part of which was ex-
439 ported to the Philippines and to Japan. In 1870, total production amounted to 73,000 metric tons; 63,7000 metric tons were exported. During the Japanese occupation of Formosa, the island's sugar industry was developed to supply the require-
257 ments of Japan proper. Four Japanese companies
433 controlled Formosa' sugar industry. During the
471 1930's, 42 mills able to process a total of 65,000 metric tons of sugar cane were in operation. The sugar syndicate owned 117 hectares of land, a railway extending 2,800 kilometers, had a staff of 5,000, employed 19,000 workers, and generated its own power. After the war, all of the mills came under the control of the government-owned Taiwan Sugar Corporation. In 1947, six mills were incorporated, bringing the total number of mills in operation to 36. At present, only 26 mills are in operation; for reasons of economy, ten mills were shut in the period 1951-52, and production goals for 1954-55 were lowered.

472 In addition to the Taiwan Sugar Corporation,
252 which is the sole producer of refined sugar, some 52 private companies belonging to the Taiwan Brown Sugar Association produce brown sugar for domestic use and foreign export.

257 The milling capacity of the 26 mills controlled
433 by the Taiwan Sugar Corporation is 49,350 metric tons of sugar cane per day; sugar recovery is about 12 per cent. These mills operate an average of 150

C. The Production of Flour

256 433 It has been estimated that, as of 1953, Formosa required 108,000 metric tons of flour in order to meet civilian and military requirements.[19] Demand for flour has greatly increased as the result of the influx of refugees from the China Mainland, most of whom choose flour in preference to rice as the main staple of their diet. At present the island can produce only about 17,000 metric tons of wheat. Of this amount, and apparently far short of the island's requirements, only about 10,000 metric tons is available to be milled as flour; the remainder is utilized in brewing, for seed, and so forth. Natural conditions are believed to limit Formosa's optimum wheat production to 30,000 metric tons a year, and in consequence the island has found it necessary to import either flour or wheat. It was believed that the importation of wheat for domestic milling was most economical, in view of foreign exchange. The Foreign Operations Administration has been of aid in the importation of wheat and its distribution to local mills. As a result, the number of flour mills in Taiwan has increased in recent years, to the point where the milling capacity exceeds the requirements of the island.

471 256 433 The provincial government owns two flour mills, and there are 33 relatively large private

19. James E. Auburn, "Taiwan Wheat and Wheat Flour Requirements," Chinese-American Economic Co-operation, Taipei, Mutual Security Mission to China, Vol. 1, No. 12, pp. 25-30.

mills and 80 smaller mills scattered over the island. Their combined productive capacity is reported to be approximately 1,227 metric tons a day. If the mills were in operation only 250 days a year, their total capacity would be some 306,750 metric tons a year, far exceeding the estimated annual consumption requirement of 108,000 metric tons. The annual consumption requirement may have increased as the population increased in the past two years. The production goal for 1955 was set at 160,000 metric tons of flour, to be processed from 208,000 metric tons of imported wheat in addition to 8,000 metric tons of domestic wheat.

It should be noted that Formosa's production of flour is vitally dependent upon the importation of wheat. Delay or discontinuation of import would immediately affect local markets.

D. The Production of Edible Oil

Peanut oil and soybean oil are the most important types of edible oil produced in Formosa. The oils are used in domestic cooking. What remains after the oil has been extracted is used to feed animals or as fertilizer. Although enough peanuts are produced to meet domestic requirements, about one-third of the soybeans needed are imported. Approximately 500 producers of edible oil were reported in 1954. Most use cottage-type pressing mills, operated by human and animal labor. There are only 24 modern oil-pressing mills on the island. The production of peanut oil, peanut cake, soybean oil, and soybean cake is

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discourage innovation in agricultural technique, and to keep at low levels the output per person working in agriculture. An economy in this condition requires important modifications when "economic development" is desired. Farming must be made more productive, and radical progress is necessary in other pursuits. Barring some curtailment of consumption, such a change always implies expanding production faster than what is immediately consumed.

One of the keys to the Japanese colonial program in Taiwan, and to its demographic consequences, was how they set out to induce this saving. They chose the course of concentrating the additions to income from production in a few corporate business structures, instead of relying on the savings of individuals in Taiwan. Presumably this has been a goal in the management of most colonies, since indigenous sources have rarely been relied upon for large-scale investments. Its corollary—policies to suppress gains in individual native incomes—has been the chief source of hostility against colonial powers. But while most other nations have had only moderate luck in pursuing this objective, with the Japanese it was an outstanding success.

They took care that the formation of capital proceeded rapidly and from internal savings alone. Even in Japan, which in some respects is closely comparable, the whole pattern and purpose were different. While the Japanese were leading their own economy toward self-sufficiency in manufactured commodities, economic change in Taiwan was being contrived with a still surer hand to move in an opposite direction, toward complementarity with Japan. The output of the island was gradually shaped so as to furnish a net contribution of agricultural and semi-processed food and related commodities every year to Japan. These were items which Japanese felt to be essential for their more ambitious plans at home, and which for various reasons they wished to avoid purchasing outside Japan in ordinary world markets.

All the while, they mounted an impressive program of building up physical equipment in the island itself. Thus earnings were being reinvested on a large scale at the same time that they were also being drained off at a considerable pace by exports to Japan. This feat had to be accomplished in only one way—by raising the output of the island sharply while not greatly changing the levels of consumption for the population at large.[2] In this respect the Japanese managed

[2] The alternative—of gains by depressing popular consumption—should probably be ruled out. It cannot be conclusively demonstrated either that levels of living rose or

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the process of capital formation in Taiwan in basically the same way as at home, by prodding the economy at critical points with innovations and developing special social policies to divert the gains from consumption to investment. The success of domestic saving in Taiwan is simply accentuated by the steady flow of commodity shipments to Japan, whereby Taiwan as an enterprise did more than pay its own way.

This success is best summed up in the yearly figures of trade with the outside world. From 1909 on, with the sole exception of 1913, there was an export balance every year in the value of Taiwan's external trade. Most of its entire trade was carried on with Japan—over 90 per cent after 1930 if Manchuria and Korea are included.[3] Related to the total value of exports, the balance amounted to a steady share of about 30 to 40 per cent of all exports to Japan, 25 to 30 per cent of all exports to the entire world, that were not paid for in the form of imports of commodities (see Table 4). It is not proper to infer from these figures that Taiwan occupied a "favorable" position, since apparently the balance was merely carried on the books of a few companies with home offices in Japan. This being the case, such figures probably even understate the amounts taken out.[4]

The Role of Government Policy

By implication, the foregoing account reveals that colonial rule yielded quick and gratifying results in Taiwan. These were not

that they fell for Taiwanese. It does seem certain that on the average they must have risen somewhat, but that they did not move very far one way or the other. Undoubtedly some Taiwanese who took part in the new developments became richer, and many who did not became poorer. Agricultural output per farmer definitely increased, as the next chapter will show. There are figures (see Ch'en Cheng-hsiang, 1950, p. 151) that suggest a slight falling off of rice consumption per person, but they must be computed in a way that weakens their reliability. However, the large additions to Taiwan's economy under the Japanese were the new productive facilities, fixed equipment and market organization, which it is the purpose of this chapter to document. There is no way of showing how these improvements were shared by the Taiwanese, though we know that the Japanese took steps to keep the major shares to themselves.

[3] It is fairer to consolidate the "Yen Bloc" as a whole in computing these balances. To some extent imports from Manchuria and Korea were used to offset the account with Japan; this combined account shows a smaller balance than the account with Japan alone in most years. Separate data for Manchuria were not available in preparing Table 4. Aside from their monetary value on a balance sheet, the articles imported from Manchuria and Korea had a special importance, for they consisted mainly of fertilizers that were indispensable to Taiwanese agriculture.

[4] Grajdanzev (1942), p. 157, claims that the export balance cannot be materially reduced by taking account of hidden items; many of these, such as cash remittances to Japan, would actually increase it.

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achieved through the efforts of private individuals in a free investment market. The Government-General of Taiwan was given a free hand by Tokyo in most internal affairs, and displayed great interest and vigor in regulating all areas of business activity that it could effectively control. A large part in the formation of capital in Taiwan can be attributed to official steps deliberately adopted with this end in view.

On the one hand, these measures consisted of widespread rationalizations in agriculture and large investments providing technical economies to individual farmers; on the other, there were various devices to centralize the heavy investments in large blocs and thereby keep control over the entire venture. The former consisted mainly of improvements that could be initiated and carried out by Japanese without full participation by Taiwanese, and the latter of ways to guide the process and garner the returns. The one served to raise the average productivity of working Taiwanese without depending on them for inception; the other to avoid dissipating the earnings of the colonial enterprise as higher incomes among the Taiwanese, by confining them in the charge of a few Japanese.[5]

Although the Japanese treated their domestic agriculture in much the same way, they made use of their own farmers' earnings in furthering the growth of industry. The fiscal role of rural Taiwan corresponded to that of rural Japan, but in Japan the several lines developed together and were complementary. Fewer opportunities of this nature were exploited in Taiwan, for the complementarities were all external. This is shown in the other side of the picture of trade with Japan—that of imports and their composition. More than half of the value of imports from Japan during later years represented items that were clearly for current consumption.[6] There was surely nothing like the emphasis on heavy capital goods among the remainder that is found in the imports of Japan itself.[7]

Problems of Pacification

This study is concerned as much with broader aspects of organization in economic life as with the economic activities themselves. Thus

[5] One of the organizational devices for diverting this income away from consumption was, as in Japan, to make it flow into corporate rather than individual hands, where its disposition was more easily regulated.

[6] I.e., articles such as food, clothing, paper, beverages, textiles, manufactured consumer commodities, and the like. One suspects that a large part of these went to maintain the comforts of the Japanese living in Taiwan.

[7] For example, see Reubens, Edwin P. (1950), pp. 109-112.

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it is pertinent to examine the stages by which the Japanese spread their influence over business affairs. Before the Japanese occupation, Taiwan was a busy farm area producing chiefly rice and other foodstuffs for itself and neighboring countries. It still held virgin lands that yielded well to the cultivation of Chinese farmers, and was known among Mainland Chinese as one of the few places where fortunes could be made or lost quickly. It was known elsewhere for other features not unrelated to these—foreigners established some renown for the island's production of marketable crops like tea and camphor, as well as for its beautiful scenery and adventure. Some early Taiwanese had always enjoyed years of prosperity, subject to the vicissitudes of weather,[8] warfare among powerful families or with the aborigines, and to the unpredictable greed of officials.

Although agriculture was the mainstay of livelihood, there were the subsidiary pursuits commonly found from place to place in China. Additional opportunities arose in connection with commerce, which was the most flourishing sphere of enterprise. The export trade in the few products shipped abroad was the only spot affected by foreign influence. A small number of Western traders had stayed in Taiwan, arranging for the sale and delivery of the island's produce to the outside world, but the scope of their business operations was limited to buying and shipping. Even tea-growing, which an Englishman had begun, was left entirely to the local population and Chinese middlemen, up to the stage of packing and sending the tea abroad.

The settled portion of the island, often down to the actual appearance of its villages, was a close replica of conditions on the mainland of South China, 100 miles away. The Manchu government adopted policies calculated to restrict rather than encourage any growth or diversification of economic activities. It abhorred the prospect of having the profits of any sponsored enterprise go to foreign merchants, and suffered an incapacity for such sponsorship inherent in its organization.[9] Observers of the period saw little likelihood of change.

Hence Taiwan when the Japanese acquired it was already a granary ready to function as a going concern, but with some impediments to being operated as such. In contrast to both China and Japan, it

[8] These hazards were many and frequent. Lack of systematic attention to irrigation had placed farmers at the mercy of floods, local droughts and destructive hurricanes, and severe earthquakes were common.

[9] This aspect of early political and business affairs in Taiwan is described at great length in Davidson, James W. (1903), Chs. 14, 15, and 17.

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was a newly settled land whose surface still showed little strain of intensive clearing and cultivation, and whose manifest possibilities for wider exploitation in agriculture and other lines had scarcely been tapped. Merely imposing public order and effective political administration could hardly have failed to ensure general prosperity, and the Occidental community at the time contemplated the experiment with great interest.

The new authorities did not leave much room for doubt about their intentions for the economy. Even while engaged in some dissension and maneuver for power between their own civil and military officers, they quickly set about constructing railroads as a state enterprise, reinstituting an official monopoly of camphor (amounting to a world monopoly since Taiwan with Japan was the sole important world producer), nurturing one large company for practical research and experiment in sugar production, reviving the former domestic monopoly of salt, and executing a complete and accurate land survey—Taiwan's first—in order to regulate some of the discordant relations of tenancy among farmers and landlords.

Most of the administrative changes were based on a notorious need for reform of pre-existing practices. But all of these reforms were two-edged. Besides regularizing commercial practices and "correcting abuses," the official monopolies and export associations slowly made it impossible for foreign concerns to remain in operation. The revenues from key lines of business soon became centralized in either the Government-General or corporations explicitly controlled by it. Those relations began to appear between state and business that determined the future course of the fields involved. The land survey furnished a basis for levying a stiff land tax which brought forth a gratifying and dependable flow of revenue into the public treasury and helped to finance later development schemes.

If the overall design of economic expansion had been fixed in the minds of influential Japanese even before they took possession of Taiwan, and to some extent this seems likely, its timetable was not. They did not foresee, for example, that almost ten years of costly and arduous military campaign would be needed to subdue the aborigines and thousands of Taiwanese in the lowlands and foothills who had reverted to banditry. And it became apparent only after many Japanese lives had been forfeited to sickness that this "pacification" of the island had to be accompanied by full-fledged warfare against disease and a general sanitation program, in order that enough

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also maintained a zealous staff of workers to put new findings into effect. Taiwanese villagers were mobilized into compulsory associations to utilize the information, and the program was carried on with close cooperation by local authorities.

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In addition to these measures, certain of the large Japanese expenditures on outright heavy investment helped to modify agricultural productivity of Taiwanese. The building of railroads, large-scale facilities for irrigation and flood control, and in later years factories for processing agricultural produce all worked some radical changes in the relations between the farms and the markets abroad. But these reached down only occasionally to disturb the operation of individual peasant farming. What one Japanese writer has called the process of "capitalist development in Taiwanese agriculture" was not so much a matter of developing investment in agriculture itself as of surrounding agriculture with capital improvements.[14]

Many improvements were introduced directly by the Government-General. Usually a charge was levied on their use or the expense was defrayed by heavy taxation. The government matched each of these steps of its own by prompting the large private firms to carry on parallel works inside their corporate domains. This sort of extra-curricular investment was widely undertaken by Japanese companies, and led to the growth of giant integrated concerns, some larger than their counterparts in Japan.[15]

A remarkable set of inducements existed for engaging in this sort of corporate expansion. Taiwan in the first place had the reputation of being the most profitable locale for investment in the Empire.[16] In addition to this, the Government-General frequently offered subsidies, partial subscription of funds by itself, special legal privileges, a trifling burden of taxation, and in general more cordial relations with the state than were available elsewhere. The response to these terms was apparently more enthusiastic than had been anticipated. It rose at times to feverish speculation, followed by short depressions among Japanese financial circles,[17] and led the Government-General to impose restrictive schemes for fixing prices and output.

[14] Yanaihara, Tadao (1929), p. 140 ff. He points out that most Japanese held land as landlords, like the Taiwanese, not as capitalists. The exception to this rule—and it is a large exception—was the management of sugar-growing plantations by a few of the large sugar-processing companies.

[15] Grajdanzev, A. J. (1942), p. 96.

[16] Yanaihara (1929), p. 146.

[17] Price movements of rice and sugar in Japan intensified some of these effects, especially in the late 1920's and for several years after 1930. See Grajdanzev (1942), pp. 99-101.

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471 454 438 There was still another category, a somewhat subtler one, by which Japanese investment was injected into Taiwan's economy. This consists of what might be called organizational changes, like banking facilities and the formation of stable domestic markets for disposing of produce. Many such features had been notably absent before 1895, when most commodity markets were no more than local in scope, prices fluctuated widely, interest rates were usurious, and speculation was the principal business activity. This channel of influence was often not actually separate from others; some efficiencies of this sort appeared even as by-products of other more deliberate innovations. These advantages tended to flow from relations among the modern types of business organization. Hence such benefits went to Japanese businessmen, though they often opened up subsidiary avenues to wealth for a number of Taiwanese in commerce and in service enterprises.[18]

With no significant exceptions, the growth and spread of Japanese business activity in Taiwan served primarily to introduce capital into agriculture without greatly changing the operation of individual farms. It furnished a pattern of services between the fields and the markets in Japan through which to reap the economies of modern organization, and yet ensured that most of the proceeds were reinvested on the island in a pattern determined by official decision.

The Preparations for War

656 During the early or middle 1930's the Japanese Empire began to turn toward preparations for war. The colonies were called upon to increase the measure of their contribution in other lines of production besides Empire self-sufficiency in food. Taiwan was not abundantly endowed with the heavy stuff with which the war was to be made—metallic ores were lacking, and coal deposits were not plentiful—and so it was permitted to assume some of the burden of processing materials formerly supplied to Japan as agricultural and other primary produce. This decision did not issue entirely from military or strategic considerations, since in many cases it amounted to no

[18] Chartered banks were an exception. They harnessed funds for industrial investment, and were all owned and operated by Japanese. ". . . modern banks in Taiwan help to collect money from the population and loan it at a relatively low rate of interest to the big Japanese firms, while the Chinese [Taiwanese] have to apply for loans to other sources where they pay two to five times as high a rate of interest as that which the Japanese firms pay." Grajdanzev (1942), p. 126.

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654 services for themselves, in order to keep output in pace with their own milling capacities.[23] The industry had expanded, in fact, too 435 rapidly for its own good. It had suffered several crises, brought on by fluctuations in the demand for sugar in Japan, where its tariff preference led it to sell.[24] To "stabilize production," the important producers organized a cartel (under the Japan Sugar Association) with government permission and guidance.

Buying of cane from farmers had from the start been controlled by agreements among processing firms; the cartel opened a concerted effort to prevent cane prices from rising. The need for this step arose from the fact that sugar cane and rice both were grown in the same soils and more or less during the same seasons. In effect, the two crops competed for land. Japanese had always complained that the Taiwanese had a perverse tendency to cultivate rice when it was more profitable. Under the cartel agreements, sugar firms avoided competitive buying by strict agreements to allocate areas of cane purchase. Owing to their size and diversity, they were able to persuade many farmers to grow sugar instead of rice by withholding irrigation water from rice fields, and by making conditional cash advances to individual families.

By such means the sugar cartel accomplished what the government could never have done unaided: it ensured a steady output of sugar at fixed prices for which it would have been irrational for individual 654 farmers to produce cane.[25] Sugar acquired a place of high wartime priority as a source for industrial alcohol, and beginning in 1939 the Government-General assisted sugar concerns to construct distilleries and make alcohol on the island. Under these circumstances it is not surprising that the sugar processing industry tended to pass into fewer and fewer hands. After a merger in 1940 more than 95 per cent of the sugar in Taiwan was milled by five giant companies. Though more extreme, the history of the sugar industry was essentially that of all large-scale Japanese enterprise in Taiwan.

655 The Government-General itself began to promote industrial ex-
471 pansion during the 1930's by further participation in economic life.

[23] Privately owned and operated railroads attained a length of over half as great as the entire state system. Not all were built by sugar concerns; the largest belonged to lumber companies. Most were of narrower gauge than the main rail lines. See *Statistical Summary*, Tables 440-442.

[24] Costs were higher than in Java throughout the period, putting Taiwanese sugar at a serious handicap in markets outside Japan.

[25] The Government-General did its part to encourage sugar cultivation by putting rice paddies in a higher tax category than comparable sugar fields. And in 1939 it simply took over the entire cartel by issuing a set of detailed regulations to dictate its affairs.

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First, it controlled certain key sources of income and authority, as before, through the legal monopolies. Net receipts from these enterprises (including salt, alcohol, camphor, tobacco and opium) made up one of the largest classes of revenue. Public railroads, irrigation and generation of electricity were also government monopolies—unofficial but nonetheless actual—which were operated more for the sake of the power that could be wielded through their services than for profit. They were developed so as to assert what amounted to administrative control over the private sphere of production.

These were really little more than refinements of earlier devices. One of the important departures from previous government policy was to partake directly in more business activity. No data were ever published to show the extent of government investment side by side with that of private firms. It was thought to be at a level nearly as great as the whole private sector, but was mixed too thoroughly to be separated in any reliable fashion from the whole.[26]

Outright government holdings in corporations went beyond scattered blocs of shares in individual companies. Many of these official firms were diversified and enlarged so as to absorb parts of related fields. For example, the larger electric power companies, owned or dominated by the Government-General, helped to build the nucleus of Taiwan's metallurgy industry. Most of the wartime aluminum production was carried out by such integrated concerns. The government itself formed the Taiwan Development Company, in 1936, as a super-corporation to promote interrelated ventures of this nature. It speedily promoted a host of subsidiaries strategic for the war program.[27] Besides all of these extraordinary activities, the regular budgetary expenditures of the Government-General leaned increasingly toward injecting new state services into the economy, and probably contributed thereby to the inflation later in the war.[28]

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[26] Certain tables have been quoted many times that purport to show the amounts of these investments (see OPNAV, Civil Affairs Handbook, *Taiwan—Economic Supplement*, 1944, pp. 97-98). We shall not reproduce them here, for none of the published data on corporate investment are very trustworthy. The publications never stated what criteria were imposed in their collection, and so it is impossible to know exactly what they represent in any given instance. They conceal the weight of government as opposed to private corporate holdings, and do not differentiate between large holding companies and their subsidiaries.

[27] Incomplete data on some of the known holdings of this and other of the larger firms are given in the OPNAV Civil Affairs Handbook, *Taiwan—Economic Supplement*, Appendix, p. 86 ff. Through omissions, these figures are known to understate grossly the extent of corporate concentration.

[28] These services stretched from research grants to larger funds allocated directly for new subsidies of business. *Ibid.*, p. 59.

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Land that was improved in this manner not only yielded more at each harvest: over a third of the paddy land yielded more than one harvest each year. Under schemes for rotation and inter-cropping devised by the Japanese, it was not unusual to take three separate harvests from many of these fields in a year.

The labor of preparing the land, of weeding, and of harvesting was not saved by these changes. They may have involved some net additions—irrigation became a more complicated process in some cases, and the aqueducts for transporting the water required special maintenance. Japanese were aware that the soil could not be farmed more intensively without losing some of its fertility, and encouraged the use of commercial fertilizers, much of which they required to be prepared on the island. The remainder comprised the largest single category of Taiwan's capital imports, greater in value than the iron and steel and machinery which are sometimes identified with the needs of agrarian countries. Importing fertilizers for sale in Taiwan proved to be a profitable line of business; it was reported to be firmly in the hands of a few large Japanese concerns, a fact which should occasion no surprise. It was shortage of fertilizers that brought on declines in average yields of crops after 1940 (see Table 6, above).

The shift in official plans for Taiwan after 1930 leads one to look for some indication of results in the composition of Taiwan's products. The search is not very rewarding. In terms of gross value of product, agriculture did not lose its place as the foremost line of production until 1940 and later. Then it exchanged ranks with "Industry"—because farm produce fell off momentarily rather than because of any sharp rise in manufacturing (see Table 7).[32] The steady but slow decline in the share of agricultural production in earlier years had indicated a tendency to submit more of the agricultural produce to processing before it left the island, and not a shift from farming to manufacturing.

It is when the category of "industrial" production is examined in detail that some of the more recent trends emerge. In Table 8, evidently industry in Taiwan had always been centered around food products. Until the mid-'thirties these had amounted to three-quarters of the value of all manufactures. Only from then on did the effects of new economic goals begin to appear. The largest advances were made in some of the fields that had been smallest, espe-

[32] The sharp rise in the numbers of Table 7 was largely a matter of currency inflation.

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supply of unoccupied land in Taiwan that could be drawn into cultivation, and so the needs of an expanding farming population and growing export demand had to be met by other means. The Japanese turned again to large investment to improve the effectiveness of the land that there was. The manner of constructing and upkeep of irrigation canals in Taiwan depended on mass labor. They were turned into an investment of labor, employed so as to produce an important form of capital equipment. The extent of irrigation more than kept pace with rural population growth while the Japanese were in control. Water for this purpose became indispensable in maintaining the output of farms. It was a hidden element in the improvement of rice and sugar yields, for the new varieties of seed that were developed were types that needed to be carefully irrigated.

Finally, the development of electric power was so closely related to the growth of Taiwan's newer industries that it should not be passed over without mention. Generation of electricity was one of the specialized heavy investments that formed the nucleus of the "industrial" progress after 1930. This is evident in a circumstantial way from the trends of capacity in generating power and the spread of factory employment (see Fig. 8). Factories in Taiwan came to depend on the cheap electricity that was developed at state instigation from water power. Judged from the size of their employment, the most important of the mechanized factories in the island were "food" (i.e., sugar) and metallurgical plants, which were the heaviest users of electricity.

As the next chapter will indicate, the Japanese broadened their objectives in Taiwan too late to put its human resources to best use in the new effort. Drawing the developed wealth of the island together into centralized control had turned out to be singularly advantageous. It had erected an entire structure of corporate organization from specialized financial services down to the coordinating of actual physical production of commodities. The Government-General had retained a close supervision over this structure, by licensing, regulation, and participation as a shareholder. As a program it quickly marshalled the production of Taiwan's farms into a profitable colonial enterprise.

When it came to pressing this development further, however, the Japanese made no real progress, for they had frustrated these aims in advance. Under agrarian conditions, industrial skills and experience in management are slower and more difficult to accumulate

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"ECONOMIC DEVELOPMENT" IN TAIWAN

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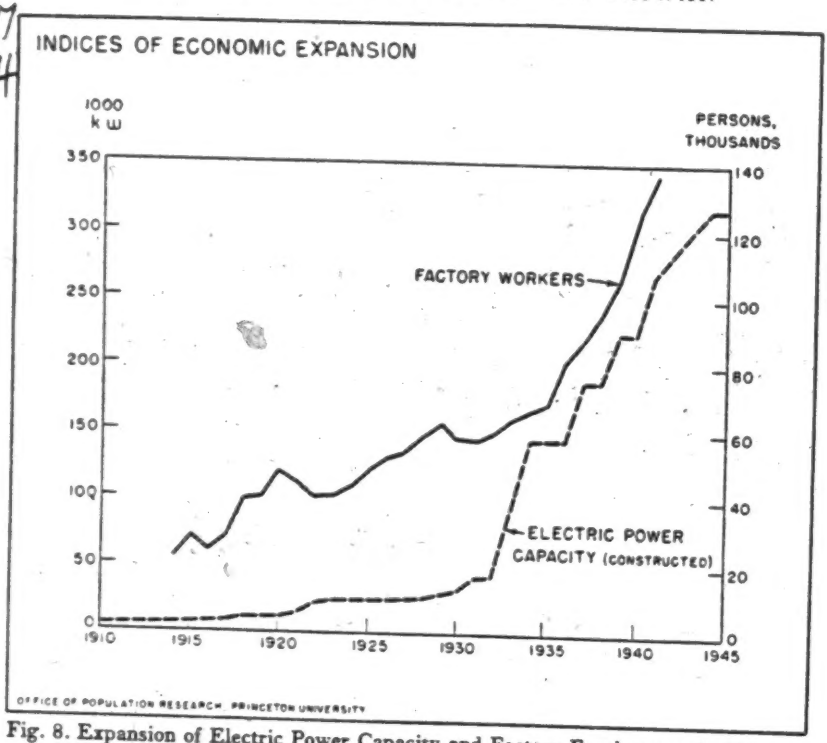

Fig. 8. Expansion of Electric Power Capacity and Factory Employment in Taiwan, 1910-1945.

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than material forms of capital. Japanese in the past had never cultivated an adequate fund of these among the Taiwanese. The same mechanisms which had served so well in channeling a large part of the total product each year toward desired uses had suppressed any opportunities for industrial employment that might attract Taiwanese who had administrative skills. What the Japanese themselves referred to as the "industrialization of Taiwan" was nothing but a corporate superstructure placed on an agrarian base. This was not capable of diffusing an industrial culture thoroughly among the general population, because it had been devised to prevent this very thing.

Since March 1948, a refining process has been instituted in the government-managed camphor industry.[37] In areas where Taiwan and Japanese economy complement each other, a trade agreement was signed with Japan on September 6, 1949 under which Taiwan sugar, salt, camphor, cement, and pears are to be exchanged for Japanese consumer and capital goods at an estimated annual volume of US$100,000,000.[38]

Government-owned and -operated enterprises dominate Taiwan's industrial field. As of 1950, there were 79,058 publicly operated units employing 63,065 workers. Available statistics place privately owned industrial units at approximately 67,660 employing 53,310 workers. Production figure for public industries in 1949 is about NT$718,000,000 as against NT$600,000,000 for private enterprises.[39]

This situation may be accounted for by the predominant position of Japanese-owned industries in Taiwan which were acquired by the Chinese Nationalist government following the Japanese surrender in September 1945. Since then, petroleum, aluminum, gold and copper mining, salt, coal mining, and steel works have been taken over by the National Government. Power, sugar, fertilizer, cement, alkali, pulp and paper, shipbuilding, and machine tools have been jointly operated by the national and provincial authorities on a capital division of 6 to 4. Some smaller mining units, camphor, tobacco and wine monopoly, and agricultural and forestry enterprises have been managed by the provincial government. The rest, being of smaller scale, have either been taken over by county or municipal govern-

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*Reconstruction**, Vol. 2, pp. 473–74, where the total 1948 demand was estimated to be 141,727 tons.

[37] For a general description, see *Taiwan Reconstruction**, Vol. 2, pp. 436–46.

[38] For detailed listings, see *Taiwan Reconstruction**, Vol. 2, pp. 357–61.

[39] *Taiwan Today*, pp. 121–22.

[p. 219(B)]

52:Steiner S-4 (no date) 1951
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655 ments or sold to private industrialists by
471 means of competitive bidding.[40]

Taiwan's industrial growth in recent years reflects mostly the development of government enterprises. Such state industries as gasoline, kerosene, and Diesel oil have registered considerable increase over the peak year production figures under the Japanese.[41] Other government-operated industries such as electric power, sugar, alcohol, cement, and camphor, though lower in production volume than in the prewar peak year, have made extensive recoveries in contrast to their chaotic conditions at the conclusion of World War II.[42] Augmented by ECA assistance, the over-all industrial picture may be described as one of steady growth.

Educational Policies

871 The Nationalist government inherited
177 from Japan an educational legacy which
[212] comprises a mixture of salutary and disadvantageous factors. Of the former is a more than 70 per cent literacy among the people.[43] A framework of primary and secondary schools scatters over the island. A fair foundation of vocational education has been laid. There are also several higher institutions of learning. A tradition of discipline, hard work, and thriftiness prevails among the students.

871 On the disadvantageous side is the
177 predominant position of the Japanese
197 language, both spoken and written, as a medium of learning. Many island inhabitants can hardly read Chinese or speak their native Fukien tongue flu-

[40] *Taiwan Reconstruction**, Vol. 2, pp. 408–547.

[41] *Ibid.*

[42] *Ibid.*; also *Taiwan Today*, pp. 99–122.

[43] *Taiwan Reconstruction**, Vol. 1, p. 89; also for a general treatment of the subject, see Taiwan Provincial Government, *The Administration of Planned Education**, Taipeh, 1948.

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